In the specification:

Amend the paragraph beginning at page 6, line 19 to read as follows:

The rate at which analytes of interest bind to the solid phase in ion capture assays is typically limited by diffusion. In addition, to achieve the highest sensitivity in the assay, non-specific binding of interfering substances must be reduced. The electric field in one embodiment of the present invention directs the transport of ~~a~~ charged molecules to selected locations, thereby concentrating them over an immobilized binding partner and consequently enhancing the rate of binding. Subsequent reversal of the field may be used to repulse nonspecific binding molecules whose affinity for the capture phase is less than that of the specific interaction. In combining a flow cell provided with positive and negative electrodes with an integrally formed SPR sensor, rapid sequential analysis of various analytes may be performed without alignment considerations. In one embodiment of the present invention, SPREETA<u>TM</u> sensors may be used for the detection of bio-molecular binding events through refractive index sensing. A capacitor may be created within the flow cell by creating a first electrode~~,~~ from the surface of the gold sensing layer and positioning a second electrode above the flow cell channel. The second electrode may be, e.g., platinum. The liquids and biological buffers typically used for most assays serve as the dielectric. If desired, the present invention may be adapted for use with gaseous test samples. Thus, the term "fluid" in the context of the present invention refers to both liquids and gases that flow on or about the sensor surface.

B1

Amend the sentence at page 16, lines 21 and 22 to read as follows:

B2

SPREETA^{TM} - - Texas ~~Instrument's~~ Instruments' integrally formed SPR sensor

Amend the paragraphs from page 33, line 15 to page 34, line 22, to read as follows:

B3

A flow cell 100 is used in these experiments to enable relatively small fluid volumes to be brought to and from the active portion of the SPR sensing surface. The body of the flow cell 100 used is a ¼-inch thick TEFLON block 114 with holes drilled to accept 1/16- inch OD TEFLON tubing. The flow cell 100 is outfitted with a small glass bead thermistor 106. A silicon gasket 112, with a laser-cut channel is placed between the TEFLON block 114 and sensor surface 116. The thermistor 106 may reside directly in the flow cell channel 102. The channel 1-2 is positioned so that it overlaps the active SPR region 116.

The flow cell 100 is assembled and mounted above the TNB-BSA slide. In the E-field assisted assay, the flow cell 100 is modified by the addition of two platinum electrodes 118, 120 in accordance with one embodiment of the present invention. A capacitor is created within the flow cell device 100 by attaching a platinum electrode 118 to the surface of the gold sensing layer 116 and positioning a second platinum electrode 120 above the flow cell channel 102. The liquids and biological buffers used for most biosensing assays serve as the dielectric. The electrodes are constructed using 0.003" thick platinum foil (Electronic Space Products International, Ashland, OR). The first electrode 118 includes a thin strip of platinum placed o top of the gold slide 116 and underneath the silicone gasket 112. The second electrode 120 is a sheet of platinum placed between the silicone gasket 112 and the TEFLON block 114. Three holes are

drilled in the sheet of platinum to accommodate the TEFLON tubing 104, 122 and the bead thermistor 106. The two electrodes 118, 120 are generally long enough to protrude from the flow cell 100. After assembly of the flow cell 100, the first electrode 118 protrudes from the top of the sensor 116, while the second electrode 120 protrudes from the bottom of the sensor 116.

B3 Cont

Amend the paragraph at page 35, lines 4 to 9 to read as follows:

B4

After assembling the SPREETA™ type sensor and flow cell, the sensor is air initialized. Liquids may be applied to the sensor surface using a simple peristaltic pump (Fisher brand Variable Flow Peristaltic Pump) operating around 300 microliters/min. An SPR curve is obtained in water. The baseline and other analysis parameters are set using this sample curve.